

IN THE CLAIMS:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1-10. (cancelled)

11. (currently amended) A monopulse antenna array comprised of individual antennas for increasing the directional resolution and angular coverage, of which the radiation directional characteristic is characterized by a sum diagram and a differential diagram,

wherein the individual antennas are connected via [[a]] one or more phase-shifters or and one or more hybrid junctions,

wherein the antenna array includes a sum input for selecting the individual antennas, so that the radiation directional characteristic exhibits a sum diagram,

wherein the antenna array includes a differential input for selecting the individual antennas so that the radiation pattern exhibits a differential diagram, and

wherein at least one of the phase shifters or hybrid junctions is switchable, so that the radiation directional characteristic exhibits further differential diagrams by the resulting change of the phase behavior due the selection of the individual antennas.

12. (previously presented) An antenna array according to claim 11,

wherein the means by which the individual antennas are connected with each other comprises a 3dB four-grid hybrid junction, two three-grid power dividers (5), a switch (6) for the alternating connection of inputs and outputs of a first set of said antennas (8) and (9), a second set of antennas (7) and (10), as well as the connecting lines between said antennas, junctions, dividers, and switch,

wherein the connecting line length between the second set of antennas (7) and (10) and the inputs of the three-grid power dividers (5) are equal in length, in order to take into consideration the switch (6), and

wherein the inputs of the four-grid 3dB hybrid junction (4) are connected with the three-grid power divider (5) with and without a $\lambda/4$ -detour line.

13. (previously presented) An antenna array according to claim 12, wherein a double switch (6) is realized by first and second 3dB hybrid junctions (13) and (14), two switches (15) driven in synchrony, and two circuit segments (16) and (17), wherein the two circuit segments (16) and (17) differ in their length so that the length difference corresponds to an uneven multiple of the half wave length of the waves passing through the array, and wherein the first and second 3dB hybrid junctions (13) and (14) are switched in series, so that one output from the first hybrid junction (13) is

directly coupled with the input from the second hybrid junction (14), while a coupling of the other output from the first hybrid junction (13) and one of the two circuit segments (16) or (17) occurs via the switch (15).

14. (previously presented) An antenna array according to claim 12, wherein the switch (6) is a simple two way switch, with which it is possible to switch between a circuit of length L and a circuit of length $L + \lambda/2$.
15. (previously presented) An antenna array according to claim 14, wherein the switch (6) is a 3dB hybrid junction.
16. (currently amended) An antenna array according to claim 11, wherein for increasing the directional resolution, the antenna array is supplemented with an additional separate antenna element, and wherein this antenna element is positioned with such a spacing from the antenna array that, wherein the combined radiation path of said array comprises a plurality of lobes, and in the combined radiation path pattern of said array and said additional antenna element one of said main lobes is at least partially suppressed.
17. (currently amended) A process for operating a monopulse antenna array consisting of individual antennas in order to enhance the directional resolution and angular coverage, of which the radiation directional characteristic is

associated with a sum diagram and a differential diagram, the process comprising:

connecting the individual antennas with each other via at least one phase shifter ~~or~~ and at least one hybrid junction, such that the radiation directional characteristic of the antenna array during selection via a sum input produces a sum diagram, and such that the radiation directional characteristic of the antenna array upon selection of a differential input produces a differential diagram, and such that at least one of the phase shifter or hybrid junctions is switchable such that the radiation directional characteristic exhibits further differential diagrams due to the resulting change of the phase behavior upon the selection of the individual antennas.

18. (previously presented) A process according to claim 17, further comprising measuring the phase angle of the output of the differential channel for determining the entry direction of a received signal.
19. (previously presented) A process according to claim 17, further comprising, for determining the entry direction of a received signal:

driving the antenna elements non-symmetrically, so that the antenna diagram is deformed, and

comparing the change of the thus received signal at the differential channel with the signal received via the undefomed sum or differential channel.

20. (currently amended) A process according to claim 17, comprising placing a supplemental antenna element with suitable spacing beside the antenna array, wherein the combined radiation path of said array comprises a plurality of lobes, and in the combined radiation path pattern of said array and said additional antenna element one of said main lobes is at least partially suppressed, and

comparing the output signal of the device without taking into consideration the supplemental antenna element, with the additive output signal of the total device with the supplemental antenna element, to thereby determine the entry direction of the received signal.